

### **REMARKS**

Claims 1-22 and 25 are pending in the application. Claims 1-22 and 25 stand rejected. Claims 1, 6, 14-16, 18-22 and 25 have been amended. Claim 17 has been canceled. In view of the amendments to the claims and the remarks below, Applicant respectfully requests that the rejections be withdrawn and the claims be allowed.

Claim 19 stands objected to for an informality involving the phrase "a third regions." In response, claim 19 has been amended so that the phrase is consistent with its antecedent basis in claim 18. Applicant respectfully requests that the objection be withdrawn.

Claims 22 and 25 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The rejection is traversed.

Claim 22 stands rejected for failure to identify any steps involved in the recited method or process. In response to the rejection, claim 22 has been amended to recite specific steps of using the apparatus of claim 16. Claim 25 stands rejected because the claim refers to an angle of reflection "expected by Snell's law," wherein Snell's law relates to angles of refraction. In response, claim 25 has been amended to remove the reference to Snell's law. Both claims 22 and 25 are hence allowable, and Applicant respectfully requests that the rejection be withdrawn and the claims be allowed.

Claim 22 stands rejected under 35 U.S.C. § 101 for being an improper process claim because the claim fails to recite specific steps of the claimed process. The rejection is traversed. Claim 22 has been amended to recite specific steps of using the apparatus of claim 16. Accordingly, claim 22 is allowable and Applicant respectfully requests that the rejection be withdrawn and the claim be allowed.

Claims 1-5, 14, 16-21 and 25 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,197,457 to Cheo ("Cheo"). The rejection is respectfully traversed.

Claim 1 recites a method of investigating a sample. The method includes “irradiating the sample with radiation having a plurality of frequencies in the range from 25GHz to 100THz.” As explained below, Cheo fails to disclose at least this step.

Cheo discloses the investigating of plastics for the presence of foreign particles or voids. Abstract. In the method disclosed by Cheo, the plastic sample is irradiated with “a laser beam of electromagnetic radiation at a given wavelength.” Col. 3, ll. 58-59. Though the given wavelength may be selected from “a number of different wavelengths within the far-infrared spectrum, that is, between 70 micrometers and 2000 micrometers,” there is no indication in Cheo that radiation with more than one frequency is used to investigate the sample. Col. 3, ll. 63-65. For at least this reason, Cheo fails to disclose each element of claim 1. Claim 1 is thus allowable over Cheo. Claims 2-5 and 14, which depend from claim 1, are also allowable for at least the same reasons that claim 1 is allowable.

Claim 16 recites an apparatus that includes “an emitter for irradiating the sample with radiation having a plurality of frequencies in the range from 25GHz to 100THz.” Claim 25 recites a method that includes the step of “irradiating the sample with radiation having a plurality of frequencies in the range from 25GHz to 100THz.” For at least the same reasons as explained in relation to claim 1, Cheo fails to disclose at least these elements of claims 16 and 25. Claims 16 and 25 are thereby allowable over Cheo. Claims 17-21 depend from claim 16 and are thus allowable for at least the same reasons that claim 16 is allowable.

Because Cheo fails to disclose each element of claims 1-5, 14, 16-21 and 25, as explained above, claims 1-5, 14, 16-21 and 25 are allowable over Cheo. Accordingly, Applicant respectfully requests that the rejection be withdrawn and the claims be allowed.

Claims 12 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheo in view of U.S. Patent No. 5,623,145 to Nuss (“Nuss”). The rejection is respectfully traversed.

Claims 12 and 13 depend from claim 1. As explained above, Cheo fails to teach or suggest each of the limitations of claim 1. For at least the same reasons, claims 12 and 13 are also not rendered unpatentable by Cheo.

Nuss is not combinable with Cheo. Cheo teaches that “detection devices 42 and 43 must be located on a scattering path which is different than any of the refraction paths 34 and preferably different than the reflection paths defined by radiation from beam 20 reflecting off of material 12.” Cheo, col. 5, ll. 12-16; *see also* fig. 1. Nuss, however, teaches the opposite. In Nuss, the terahertz detector is located directly on the expected path of refraction through the sample. Nuss, figs. 1, 4-6. In Nuss, the purpose of aligning the detector in this way appears to be to detect as much radiation refracting through the sample as possible, not just radiation scattered from internal features as in Cheo. In other words, Nuss and Cheo are incompatible with each other, as evidenced by their different purposes and the different configurations resulting from their different purposes.

For at least this reason, claims 12 and 13 are not rendered unpatentable by the combination of Cheo and Nuss. Therefore, Applicant respectfully requests that the rejection be withdrawn and the claims be allowed.

Claims 6-11, 15 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheo in view of U.K. Patent Application GB 2,385,415 to Arnone et al. (“Arnone”). The rejection is respectfully traversed.

Claims 6-11 and 15 depend from claim 1. Claim 22 depends from claim 16. As explained above, Cheo fails to teach or suggest each element of claims 1 and 16. For at least the same reasons, claims 6-11, 15 and 22 are also not rendered unpatentable by Cheo.

Arnone is not combinable with Cheo. As explained above, Cheo teaches that “detection devices 42 and 43 must be located on a scattering path which is different than any of the refraction paths 34 and preferably different than the reflection paths defined by radiation from beam 20 reflecting off of material 12.” Cheo, col. 5, ll. 12-16; *see also* fig. 1. Arnone, like Nuss, teaches the opposite. In Arnone, the terahertz detector is located so as to receive radiation along an expected

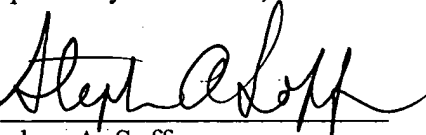
refraction and reflection path. Arnone, fig. 2. In Arnone, the detector and reflecting mirrors are aligned so as to detect as much radiation refracting through the sample as possible, not just radiation scattered from internal features as in Cheo. In other words, Arnone and Cheo are incompatible with each other, as evidenced by their different purposes and the different configurations resulting from their different purposes.

For at least this reason, claims 6-11, 15 and 22 are not rendered unpatentable by the combination of Cheo and Arnone. Therefore, Applicant respectfully requests that the rejection be withdrawn and the claims be allowed.

In view of the above amendment, Applicant believes the pending application is in condition for allowance.

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